

REMARKS/ARGUMENTS

Reconsideration of the current application, as amended, is respectfully requested.

Page 10 of the specification was corrected to add an omitted period at the end of the sentence which begins, "The solid curve..." and ends, "dispersion shifted fiber (DSF)."

First, the undersigned attorney notes with appreciation the clarity of the Office Action and thanks the Examiner.

Of previously pending claims 45-64, claims 45, 50-51, 53-54 and 58-63 were rejected on various grounds; remaining claims 46-49, 52, 55-57 and 64 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claims and any intervening claims.

Accordingly, apparatus claim 46 has been rewritten as an independent claim to include the limitations of claim 45. Claims 50-51 have been amended to change their dependency to claim 46 and hence should be allowable. Claim 50 was also amended to correct a typographical error. Apparatus claim 52 has been rewritten as an independent claim to include the limitations of claim 45. New claims 65-71 are dependent upon claim 52 and hence should be allowable. Method claims 55-57 have each been rewritten as independent claims to include the limitations of claim 54 in accordance to the Examiner's objection. Claim 58-59 have been amended to change their dependency to rewritten claim 55. New claims 80-81 have added and are dependent upon rewritten claim 56; likewise, new claims 82-83 have added and are dependent upon rewritten claim 57.

With respect to the rejections, claims 45, 50-51, 54 and 60-62 have been rejected under 35 U.S.C. §102(e) for anticipation by U.S. Patent No. 6,388,800, which issued May 14, 2002 to D.N. Chistodoulides *et al.*

In response to the rejection of independent claims 45 and 54, the applicants have amended the claims so that the optical filter structure of device claim 45 "...substantially blocks energy at frequencies about an optical pump energy frequency, including a frequency of said

optical signal, from traveling from said first fiber segment into said second fiber segment so that...". The Christodoulides apparatus of Fig. 12 does not teach applicants' claimed invention. Rather, the "isolator arrangement 66 permits the counter-propagating pump P and signal S to travel through two separate paths 72 and 74, by means of a pair of wavelength division multiplexers 76 and 86...". Col. 6, line 42-45. The high pass optical filter 82 and optical isolator 80 are on the (signal S) path 72 only; hence all signals on the (pump P) are passed freely from loop 70 to loop 68. There is no blocking of energy at frequencies about an optical pump energy frequency, as recited in amended claim 45. Method claim 54 was amended with similar language.

Hence independent claims 45 and 54 should be allowed for similar reasons. New claims 72-79 and 84-88 are dependent upon claim 45 and 54 respectively. While some of these dependent claims should be allowable in their own right, all should be allowable for at least being dependent upon an allowable base claim.

With respect to the rejection of independent claim 60, the Examiner stated,

"...Christodoulides discloses:

means for injecting optical pump energy (λ_p) into a first end (1st end from 64 to 70) of a first fiber segment (L_2); so that said optical pump energy (λ_p) counter-propagates (pump travels from 64 to 62 and signal travels from 62 to 64) relative to an optical signal (λ_s) traversing said first fiber segment (L_2) and a second fiber segment (L_1);

wavelength-selective means (82) for reflecting optical energy at a frequency of said pump energy, optical energy at a frequency of said optical signal being absorbed by said wavelength-selective reflecting means (col. 6, lines 35-60); and

means for directing optical energy (66) exiting a first end (between 76 and 68) of said second fiber segment (L_1) into a second end (between 70 and 78) of said first fiber segment (L_2), for directing optical energy exiting said second end (between 70 and 78) of said first fiber segment (L_2) into said wavelength-selective

reflecting means (66), and for directing optical energy reflecting from said wavelength-reflective means into said first end (between 76 and 68) of said second fiber segment (L_1).”

With due respect to the Examiner, the applicants disagree with this rejection. In the first place, the Christodoulides high pass optical filter 82 is not applicant’s “wavelength-selective means.” In applicants’ reading of the reference, Christodoulides has consistently called a high pass optical filter as exhibiting a “cut-off frequency immediately below the signal frequency, with low loss at this frequency and high loss at the unwanted optical noise frequencies.” Col. 2, lines 2-5. See also, col. 8, lines 7-10. That is, the high-pass filter 82 passes both optical signal (λ_s) and pump signals (λ_p) since a pump frequency is necessarily higher than a signal frequency. On the other hand, the applicants’ wavelength-selective means distinguishes between pump signals and the optical signals as recited in the claim.

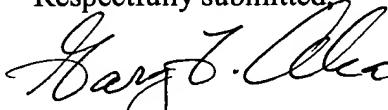
This misidentification of the applicants’ wavelength-selective means as the high pass filter 82 leads to additional problems of inconsistency. After the “wavelength-selective means” element in claim 60, the applicants’ separately recited “means for directing optical energy...” is identified as the Christodoulides “mid-stage isolator arrangement 66.” But the isolator arrangement includes the high pass optical filter 82. See Fig. 12. Furthermore, the isolator arrangement 66 does not even meet the language of claim 1. How the isolator arrangement 66 directs “optical energy reflecting from said wavelength-reflective means (identified by the Examiner as the high pass filter 82) into said first end (between 76 and 68) of said second fiber segment (L_1)” is not understood. The optical isolator 80 prevents any optical energy from the high pass filter 82 from reaching the identified first end (between 76 and 68) of the second fiber segment L_1 . If anything, optical energy reflected by the high pass filter 82 would pass into the second end (between 70 and 78) of the first fiber segment L_2 . This is contrary to the language of claim 60.

Hence independent claim 60 should be allowable. While dependent claim 64 was indicated as allowable with the indicated rewriting, all dependent claims 61-64 should be allowable for at least being dependent upon an allowable base claim.

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Therefore, the applicants believe all the pending claims 54-88 are now in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, she is requested the undersigned at (408) 446-8694 without hesitation.

Respectfully submitted

A handwritten signature in black ink, appearing to read "Gary T. Aka".

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